



Safety Topic of the Month

Preventing Back Injuries and Muscle Strains and Sprains

Richmond Refinery

8/1/2010

Preventing Back Injuries and Muscle Strains and Sprains



This Safety Topic of the Month covers:

- Anatomy of the “back” and common back injuries
- Overview of muscle strains and sprains
- Prevention methods and tips for a healthy musculoskeletal system.
- Resources

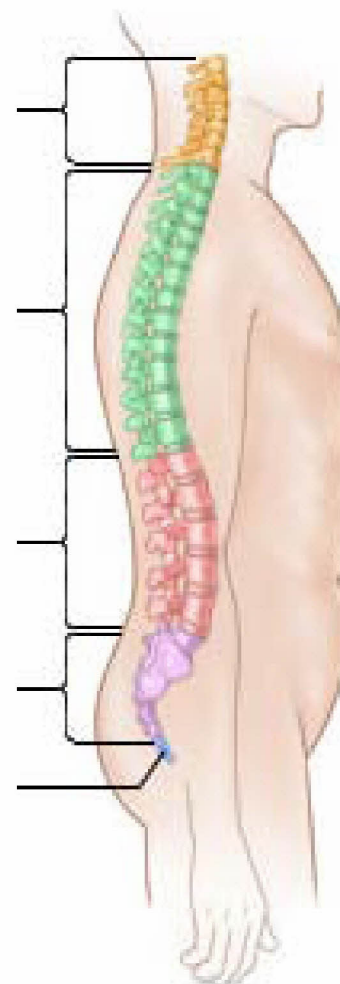
Anatomy of your back (spine)

The spine consist of 26 bones and the soft cushioning discs between them.

A healthy back is a dynamic functional unit that relies on all of it's parts (and supporting muscles) to support, mobilize, protect, and innervate the rest of your body!

Question:

What does Neutral Spine refer to?



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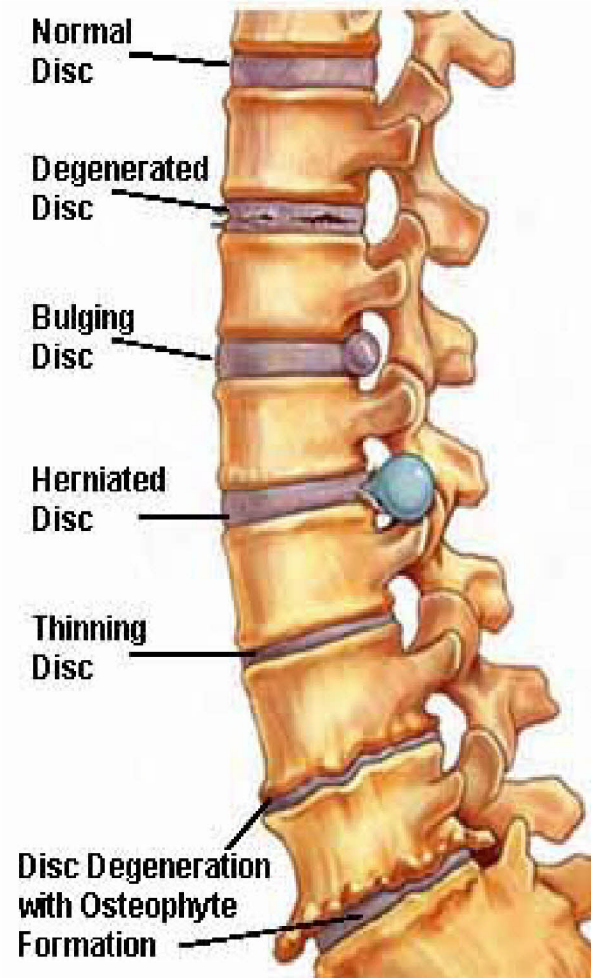
Intervertebral Disc degeneration and Herniated Discs



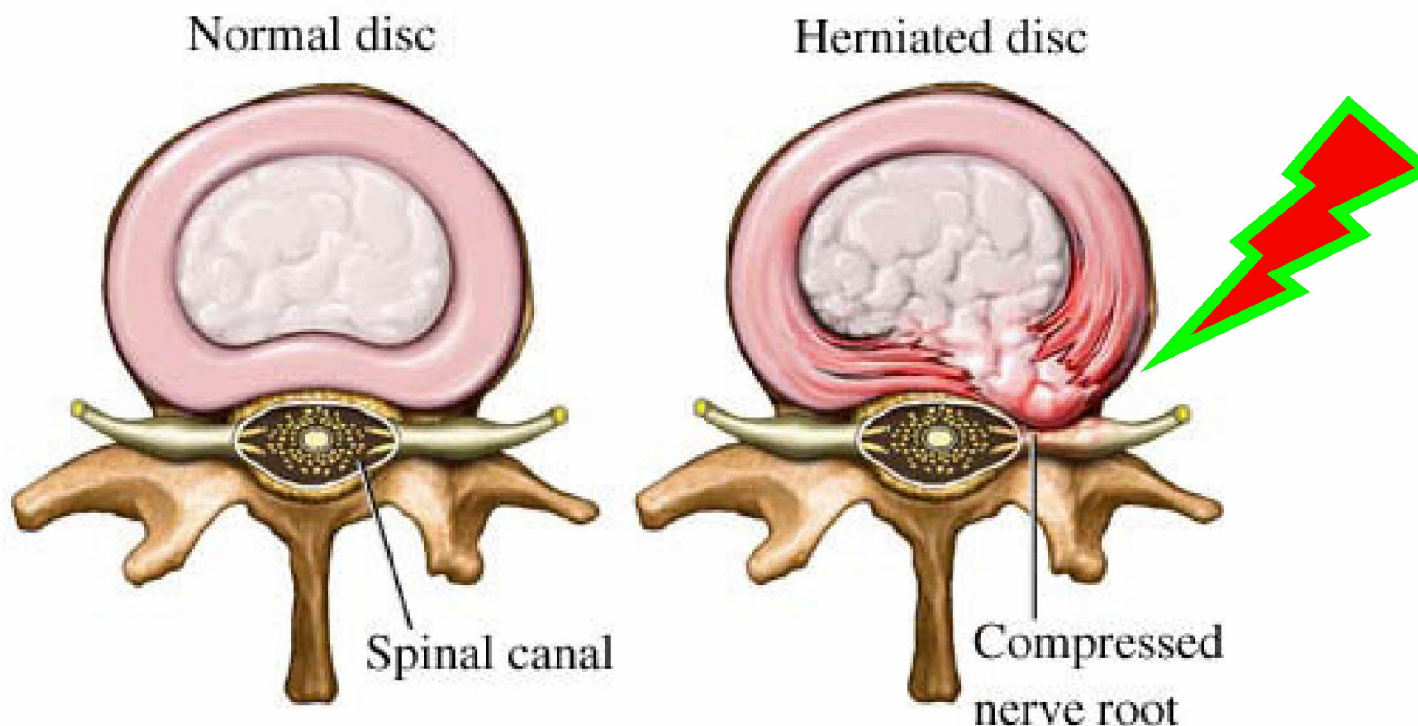
Many of the problems that cause back pain are the result of injury and degeneration of the intervertebral discs.

Over time (as we get older), discs can collapse or herniate; vertebrae can shift; or bone spurs can develop. This progression of disc degeneration can be seen in the picture.

Question: Do you think there is a correlation between body posture and likelihood disc degeneration and/ or herniation?



This is a cross section of a normal and a herniated disc



When the **soft discs** of your back are damaged from: injuries, normal wear and tear, or disease, they may bulge abnormally or break open. This is called a herniated or slipped disc. If the herniated disc presses on a nerve root, it may cause pain, numbness, or tingling.

Any muscle, tendon or ligament can be strained or sprained



Strains or sprains are like getting an injury on the inside of your body – and require healing time, just like a cut or scrape. Strains and sprains range from minor pulls to complete ruptures.

Strains—pulls or tears of muscles or tendons (the tissues that attach the muscles to the bones)

Sprains—tears to the ligaments that join the ends of bones together. The ankles, knees, and wrists are commonly affected by sprains.

Risk for Sprain or Strain is likely related to:

Speed or changes (in speed) and
Degree or deviation from non-neutral position.

What can you do to prevent disc degeneration, herniation, and muscle strain or sprain?



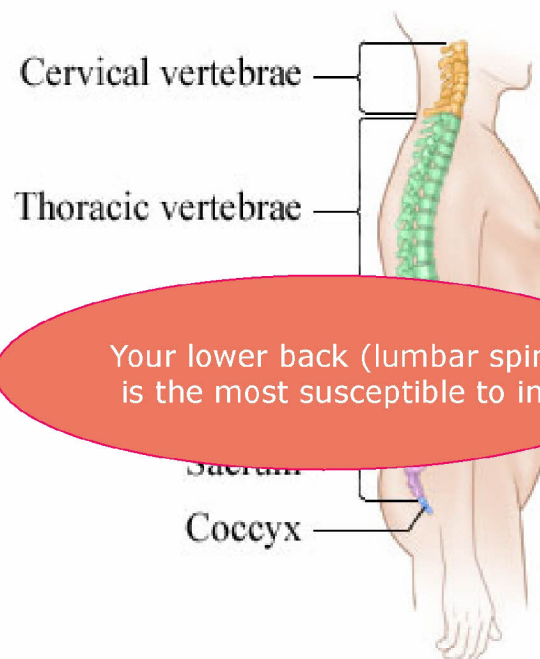
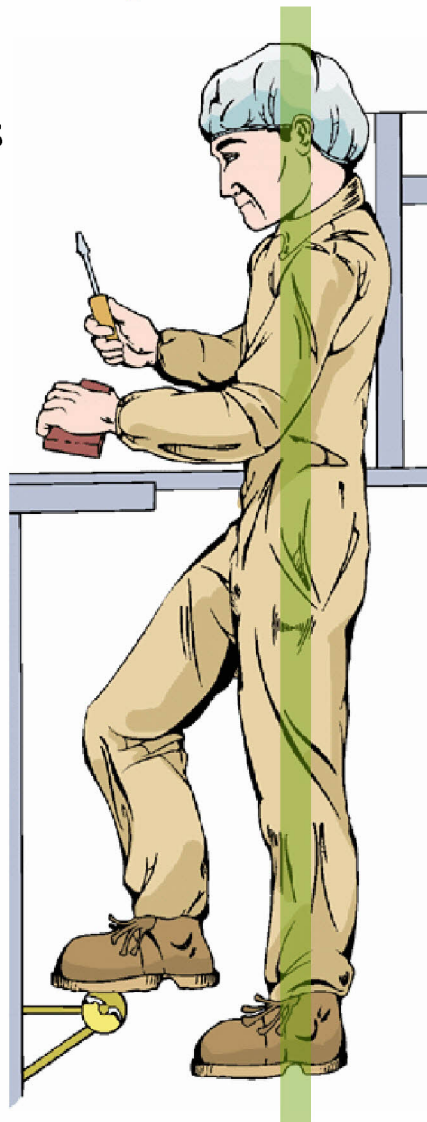
- **Warm Up / LPSA** before any physical activity.
- **Use correct lifting and material handling techniques.**
- **Engage in a Physical Conditioning Program**
- **Establish and Maintain Neutral Spine**
- **Reduce Stress** - Tense muscles are more susceptible to strains and spasms.
- **Ask for assistance** - Don't be afraid to say, "This is too heavy for me to lift alone." Many people have injured their backs because they were afraid to ask for help.

What is Neutral Spine?

Neutral Spine refers to your body posture – either in the standing or the sitting position

See the position:

Ears
over shoulders
over hips
over ankles.



Your lower back (lumbar spine) is the most susceptible to injury.

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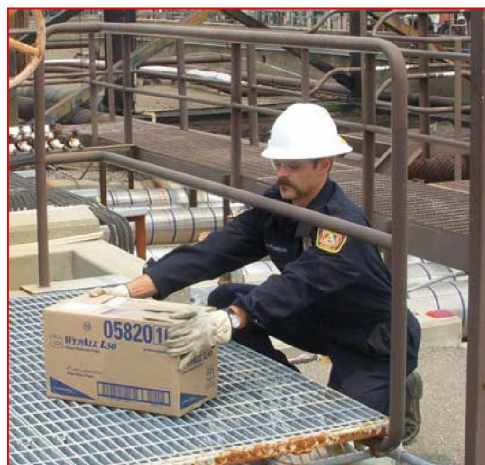
Proper lifting techniques

1. Warm up your muscles
2. Think through the lift & plan your steps
3. Test the load.
4. Establish Neutral Spine
5. Bend your well conditioned knees and hips to the object level
6. Lift the object safely with a good grip
7. Maintain neutral spine while you lift, carry, lower or move the object.
8. Get mechanical assistance if you need it ... before trying to lift an object.



Avoid or Minimize Awkward Postures

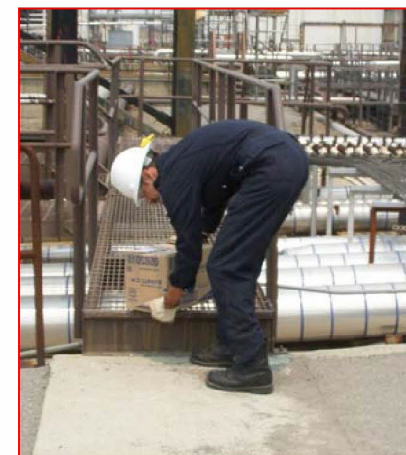
Awkward Postures include any non-neutral trunk postures related to bending and twisting in extreme positions or at extreme angles. Awkward postures also include kneeling, squatting, and stooping.



Around
Obstacles



Extreme Angles &
Stooping



Rounded back



Additional Resources

[Preventing Muscle Strains and Sprains - LPS Alert](#)

[Ergonomics/ RSIP](#)

[Richmond Fitness Center](#)



Review TOP Lessons Learned

Learning from our past incidents will help us prevent them in the future. Please take a few minutes now to review the TOP lessons learned.

TOP Lessons Learned